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ABSTRACT

A study designed to investigate to what extent ethno-linguistic background affects speech patterns and syntactic flexibility of grades one, four and six children from monolingual, bilingual-French and bilingual-German rural communities. A total of 216 randomly selected subjects were used; they were selected from nine rural Manitoba schools, and they were drawn in equal frequencies from grades one, four and six in each of the nine schools. The criterion measure for ability was Pintner Cunningham Primary Test for grade one, and the Pintner General Ability Test for grades four and six. All the language samples were segmented into minimal terminable units (T-units) single independent predications together with any subordinate clauses that may be grammatically related to it. The indices adopted for the study were differentiated on a dichotomous scale: positive and negative. Linguistic performance credited to the positive scale was assumed to indicate language maturity. Performance measured on the negative scale indicated deficiency in language development. Findings include: The only sentence-combining transformation categories favoring the grade six subjects were the Infinitive Phrase + Subject and the Coordinate transformations. Only two transformation categories showed any significant relationship to the sex variable; and the ability variable proved significant in all tested categories except Coordinate Structure transformations.
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*A Transformational Analysis of Oral Syntactic
Structures of Children Representing
Varying Ethno-Linguistic Communities

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Findings of recent investigations strongly support the claim that environmental forces are potent variables in language development (Bernstein, 1960; Higgenbotham, 1961; Hochstetler, 1961; Noel, 1961; Barnes, 1962; Thomas, 1962; Loban, 1963). This claim is aptly summarized by Strickland (1966):

The child learns his language from the people closest to him and in settings of informal intimacy. Therefore, what he brings to school is the language of his immediate environment without polish or pretense. The economic and cultural level of his home shines clearly in it, whether his is the language of the college teacher of English, the independent and aspiring businessman, the demanding skilled craftsman, or the unemployed and willingly dependent drifter on the relief dole. To the student of dialects, the geographic location in which his parents acquired their language is clearly evident.

It seems reasonable, then, that factors related to ethnic background, and particularly bilingualism would affect differentially children from different areas. To what extent and in what specific ways these variables relate to linguistic development is a matter of concern with respect to curriculum development and instruction. In a society which is increasingly mobile, the need exists to identify and analyze 'idiosyncratic' syntactic structures typical of linguistic or ethnic sub-groups. This analysis could well form the basis for determining which patterns require revision to avoid handicapping individuals moving from a particular community.

While considerable investigation has been carried out in syntactic structure with American samples (Loban, 1963; Strickland, 1964; Hunt, 1964; Riling, 1965; O'Donnell, 1967), virtually nothing is known about speech patterns of Canadian children, and less about the influence of the ethno-cultural impact upon language behaviors. The need to investigate language performance of Canadian children is particularly crucial as Canadian political

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thought has embraced strongly a 'cultural mosaic' rather than a 'melting pot concept'! A logical consequence of such a position should be to become cognizant of its impact upon the individual. Further, recent developments regarding restoration, in part, of educational privileges to ethnic communities should logically be paralleled with a recognition of the need to investigate behavior patterns emerging from segments of the 'mosaic'.

This study was designed to investigate to what extent ethno-linguistic background affects speech patterns and syntactic flexibility of grades one, four and six children from monolingual, bilingual-French and bilingual-German rural communities.

PROCEDURES

The Sample

The 216 subjects for the study were randomly selected from nine rural Manitoba schools. Each of the three ethno-linguistic sub-samples was represented by three schools. These schools were matched on number of classrooms and proximity to a large metropolitan area. The communities were parallel in ethno-linguistic background: monolingual, Anglo-Saxon, Protestant; bilingual, German, Mennonite (B-G); bilingual, French, Roman Catholic (B-F). Although the religious concomitant was not a variable selected for examination, it served to delineate and identify homogeneous linguistic communities as religious affiliation and language background constitute, perhaps, the most cohesive factors underlying ethnic communities in Manitoba.

The sample was drawn in equal frequencies from grades one, four and six in each of the nine schools. Thus, with four boys and four girls from each grade, each linguistic community was represented by 72 subjects.

Data Gathering Instruments

The criterion measure for ability was Pintner Cunningham Primary Test for grade one, and the Pintner General Ability Test for grades four and six. To enable examination of linguistic variables in relation to ability, the subjects of each linguistic community were divided into three ability groups: high, middle, low.

The film media were used to elicit the oral language samples. Both narrative and descriptive responses were elicited in a semi-structured

situation. Each subject responded in an individual setting. Typescripts were made of the recorded responses.

Segmentation and Analysis Samples

All the language samples were segmented into minimal terminable units (T-units)--single independent predications together with any subordinate clauses that may be grammatically related to it (Hunt, 1965). The T-unit may be a simple or a complex sentence. It is a useful analytical device in that the boundaries, unlike those for the sentence, are unequivocal. This segmentation obviates the researcher's subjective interpretation of junctures in the child's speech.

Since one of the objectives of the study was to measure syntactic development along a grade-age continuum, it was necessary to adopt certain valid indices of language maturity. The indices adopted were taken from studies of language development carried out by American researchers with American subjects within the last decade. Especially significant to this study were the indices of linguistic development developed by Strickland (1962), Loban (1963), Hunt (1965), Bateman and Zidonis (1966), and O'Donnell, Griffin and Norris (1967).

The indices adopted for the study were differentiated on a dichotomous scale: positive and negative. Linguistic performance credited to the positive scale was assumed to indicate language maturity. Performance measured on the negative scale indicated, inversely, deficiency in language development.

The four major positive indices were:

- (i) length of T-units
- (ii) number of subordinate clauses
- (iii) main clause patterns
- (iv) number of sentence-combining transformations.

Sentence-combining transformations, the major index employed in this study, is based on transformational analysis (Harris, 1965). This method consists essentially of reversing the normal generation of a sentence in order to identify the steps through which it has passed in its formation. The assumption is that a small set of basic sentences forms the backbone of the language, and that all other sentences are derived from basic sentence types that underlie all kernel sentences. In analyzing or "decomposing" a derived

(sentence the identification of the frequency and complexity of transformations employed in producing a sentence, provides a scale for measuring linguistic maturity.

The negative indices employed in this study were:

- (i) the number of language mazes, redundancies, false starts;
- (ii) Noun Clause Direct Discourse (NCDD);
- (iii) the number of errors occurring in the use of transformations. The latter followed closely the scale used by Bateman and Zidonis (1966) and included a count of errors resulting from misapplication and omission of transformational operations.

To supply the data relevant to all the indices employed required extensive analysis of the language samples. As in O'Donnell's study, the sentence-combining transformations identified were those producing nominal constructions, those producing adverbial constructions and those producing coordinate constructions within T-units. Tabulation of the 46 categories subsumed under these three broad classifications, as well as identification of 14 varying clausal patterns provided a basis for further comparison of syntactic structures and dialectal variations among the ethno-linguistic communities. (See appended analysis format.)

After the total language samples --6477 T-units-- had been analyzed, a frequency count for each variable was made for each subject. Analysis of variance tests, using a 3 X 2 X 2 factorial design, were run for all variables occurring in sufficient frequencies to warrant analysis. The independent variables--ethno-linguistic community, grade and sex--were tested for significance for each linguistic variable. Further analysis of variance tests were run, blocking on ability levels (high, middle, low) for each of the major indices of language development. The t- test was used to test for significance of differences between subordinate clause ratios among communities.

FINDINGS AND CONCLUSIONS

(Table I summarizes the significant findings based on analysis of variance and t- tests run on major linguistic indices--T-unit length, subordinate clause index, main clause patterns, number of sentence-combining transformations, mazes and errors.

TABLE I
SUMMARY OF SIGNIFICANT FINDINGS

Syntactic Elements	Variables			
	Community	Grade	Sex	Ability
Mean T-unit Length	**Mono.	**6		**H
No. Sub. Clauses	*Mono.	**4		**H
No. of Sentence- combining Tfs.	*Mono.	**4		**H
Nominal Tfs.	*Mono.	**4		**H
N+ Poss.		**4		n.t.
N+ Adj.		**4		n.t.
N+ Re. Cl.		**4	**F	n.t.
N+ Prep. Phr.		**4		n.t.
Noun Cl.	**Mono.	**4		**H
Inf. Phr.		**4		n.t.
Inf. Phr.+S	*B-G	**6		n.t.
NCDD		<u>**1</u>		n.t.
<u>Function:</u>				
Object		**4	*F	n.t.
Subject		**4		n.t.
Obj. Prep.		**4		n.t.
Adv. Tfs.		**4		**H
Adv. Cl.		**4		**H
Time		**4		**H
Co- Str.	**Mono.	**6		
Co- Nominals		**6		n.t.
Co- Preds.	*Mono.	**6		n.t.
VO		**6		n.t.
Main Clause Patterns				
SV		<u>**1</u>		
SVO		<u>**6</u>		**H
SVCa		**6		
SVIO		**6		
There VS				
SVCn		**6		
Errors				
V-Form	*B-F	<u>**1</u>		n.t.
Mazes	**B-G	<u>**4</u>		
False Starts		<u>**4</u>		*M
Redundancies	**B-G	<u>**4</u>		

Mono. - Monolingual
 B-G - Bilingual-German
 B-F - Bilingual-French
 n.t. - not tested

**.01 level of significance
 *.05 level of significance
 _ negative index

Findings Related to Positive Indices

Mean T-unit Length. Highly significant differences were indicated among communities for T-unit length. The differential favored the monolingual community. Further, grade six subjects uttered significantly longer T-units than either grade one or four subjects. There was a highly significant difference in mean T-unit length among ability levels--the high tertile spoke in longer T-units than either the low or middle ability subjects. The difference between high and middle levels was greater than the difference between low and middle tertiles. No significant sex differences were noted for mean T-unit length.

Number of Subordinate Clauses. The difference among communities favored the monolingual subjects in number of subordinate clauses produced. When a test of proportions was used to determine whether the ratio of main clauses to the sum of all clauses was significantly different among communities the t-value approached the .05 level. There was a significant difference among grade levels favoring grade four subjects. There was a significant difference among ability levels in number of subordinate clauses produced favoring the high ability tertile.

Number of Sentence-Combining Transformations. There was a significant difference among linguistic communities in number of sentence-combining transformations produced orally favoring the monolingual community. This difference was also noted for various sub-classifications of sentence-combining transformations--nominal transformations, noun clause transformations, coordinate transformations and coordinate predicate transformations. The significant difference, at the .05 level, for Infinitive Phrase + Subject transformation favored B-G subjects.

The only sentence-combining transformation categories (positive indices) favoring the grade six subjects were the Infinitive Phrase + Subject and the Coordinate transformations. All the other categories favor grade four subjects at the .01 level of significance.

Only two transformation categories showed any significant relationship to the sex variable--Noun + Relative Clause and Object transformations. Both favored the female subjects.

The ability variable proved significant in all tested categories except Coordinate Structure transformations. In every case the high tertile was favored.

Main Clause Patterns. Of the main clause patterns analyzed none showed a significant difference among community sub-samples. The SVO, SVCa, SVIO and SVCn patterns favored grade six subjects at the .01 level of significance. Only one significant difference was noted for ability effect on main clause patterns--the SVO pattern was produced most often by high ability subjects. No significant sex differences occurred for any of the main clause patterns.

Findings Related to Negative Indices

Mazes, False Starts, Redundancies. A highly significant difference among communities in number of mazes produced favored B-G subjects. Grade four subjects produced significantly more mazes than either grade one or six subjects.

There was no significant difference among communities in number of false starts. The F-ratio, however, approached significance at the .05 level, favoring the B-G sub-sample. The significant difference among grade levels favored grade fours. Significance for sex effect favored the male subjects. The middle ability tertile produced significantly more false starts than either high or low ability subjects.

Significant differences in number of redundancies produced favored the B-G subjects for community effect and the grade four subjects for grade effect. No significant sex or ability differences occurred in number of redundancies.

Number of T-units Beginning with Coordinating Conjunctions. There was a significant difference among linguistic communities favoring the monolingual subjects in number of T-units initiated with coordinating conjunctions. Grade four subjects produced significantly more T-units beginning with coordinating conjunctions than either grade one or six subjects. The middle ability used the greatest number of coordinating conjunctions to initiate their T-units. No significant sex differences were noted.

Noun Clause Direct Discourse. Highly significant differences in number of direct discourse noun clauses favored grade four subjects. No significant differences were noted for the other effects.

Number of Errors. The one significant difference noted for community effect was the Class V-Form error favoring the B-F community. Grade one subjects produced a significantly greater number of V-Form errors than either grade four or six subjects.

Undidiomatic Expressions

The tendency to transliterate idiomatic usage characteristic of mother-tongue patterns was prevalent in both B-G and B-F language samples. Although no attempt was made to quantify these data, some typical examples of transliterations are listed.

Bilingual-German Community. Elmer made it loose. He makes the rope loose; They climbed in and made the rope off. When they were a end off the one bear started swimming. He all the time went back. Then he tied the canoe on. They he tied the boat loose. He let it free.

Bilingual-French Community. ... and the fish asked him to leave him go. so the fisherman left him go. The fisherman at night he told his wife. and it was orange and yellow and some was red of it.

CONCLUSIONS AND DISCUSSION

The findings of this study strongly substantiate those of earlier studies (Hunt, 1965; O'Donnell, Griffin and Norris, 1967) noting mean T-unit length as an index of linguistic maturity. Grade sixes, as well as high ability children, spoke in significantly longer T-units than lower grade subjects and low ability subjects. Accepting T-unit length as evidence of linguistic maturity, one might safely conclude that monolinguals display linguistic superiority over bilingual subjects.

It is noteworthy that grade four subjects surpassed grade sixes in mean number of sentence-combining transformations. Isolated exceptions occurred in the case of Infinitive Phrase + Subject and Coordinate Structures. Hunt (1965), in his study of written language, found a significant increase in frequency of adverbial transformations with increase in grade level. The fact that grade fours, in the present study, surpassed grade sixes on most transformation sub-classifications does not refute earlier findings that sentence-combining transformations are symptomatic of language maturity as they were significantly superior to grade ones on all sub-classifications. To answer the question regarding superiority of grade fours over sixes on sentence-combining transformations, a limitation inherent in the evocative stimuli might well be considered. It may well be that grade four subjects are less inhibited in producing a flow of oral response in the presence of an investigator and a tape recorder than grade sixes. This may be particularly true when asked to reproduce fairy tales which are likely to be of greater interest to grade fours than sixes. The apparent superiority in flexibility and control of the

grade four subjects must also be viewed in the light of negative indices--the mazes, false starts and redundancies. Grade fours produced significantly greater numbers of mazes, false starts and redundancies than either ones or sixes. One could conjecture whether grade six subjects have learned to avoid becoming entangled in linguistic mazes and thus resort to "safe" but somewhat more restricted linguistic strings than younger children.

The finding that high ability subjects consistently surpassed low and middle levels in mean number of sentence-combining transformations tends to corroborate these as indices of linguistic maturity.

This study showed much greater syntactic diversity among communities in production of sentence-combining transformations than in main clause patterns. Not only did monolingual subjects produce significantly more sentence-combining transformations than bilingual subjects, but they also surpassed bilinguals on Nominal transformations, Coordinate Structures and Noun Clause transformations. The Noun Clause transformation, which was considered a significant index of linguistic maturity by O'Donnell (1967), adds substantial support concerning monolingual superiority over bilingual subjects in syntactic flexibility and control. The one sub-category, Infinitive Phrase + Subject, just barely reached the .05 level of significance favoring the B-G community.

This study indicated considerable variation among grade levels in types of main clause patterns produced. Grade sixes surpassed grade ones and fours in all but There VS and SV patterns, both negative indices. Further evidence of limited control and flexibility of grade ones is provided by their high frequency of SV patterns.

Incidence of clause subordination, which has been considered by several investigators to signal linguistic maturity, favored high ability and monolingual subjects in this study.

Considering over-all results, the monolingual community reflects marked superiority over both bilingual communities in control of syntactic complexity. The bilingual-German community follows closely in most indices followed by the bilingual-French community. However, it must be noted that on two negative indices--mazes and redundancies--the bilingual-German community surpassed the bilingual-French subjects. On the other hand, when number of errors were considered, the bilingual-French subjects exceeded the bilingual-German subjects. These findings strongly support the notion that bilingualism in and of itself is too global a concept to account for over-all linguistic maturity or deficit.

It appears that factors associated with specific bilingual groups contribute significantly to disparity in language functioning among groups. What factors account for the disparities between monolingual and bilingual groups and between specific bilingual groups constitute a salient area of investigation for the educator-researcher. What accounts for disparities among communities and within communities is an area of concern requiring further examination. Specific variables not investigated in this study might well account for the differential linguistic performance. Opportunity for exposure to adult models, opportunity, at home and school, to receive adult reinforcement for exploring varied linguistic patterns and conditions, generally, that bolster confidence in self-expression may well contribute to acceleration or retardation of language development.

Research has shown exposure to adult models to have a salutary effect on language development. If the language spoken in the home is non-standard, or non-English as in the case for subjects from bilingual communities, syntactic flexibility and control in English may well be impeded as a result. The quality and quantity of adult communication in English may be a crucial variable accounting for the differential linguistic development among communities in this study.

Sex differential in linguistic performance was of peripheral interest in this study. Only two significant differences were noted favoring females--both of these on sub-classifications of sentence-combining transformations.

A salient implication of this study is the need for the school to take into account the wide linguistic difference with which children come to school. The study points, indirectly, to the need to tailor programs fostering oral language development--development programs based on very specific objectives rather than programs designed just to allow children to talk. It seems reasonable that activities requiring oral communication could have a salutary effect on language development of children, especially those who are exposed to a meagre quantity of adult speech in their home and community activities.

There is little, if anything, in this study that suggests that monolingual or bilingual operate within a 'restricted code' system. It may be, however, as Skinner (1969) has suggested, that the language of the rural child may be sufficiently different from that of the urban child to warrant intensive language experiences prior to formal reading instruction. Further, this study would suggest that specific emphases and degree of intensity of such experiences should differ for particular groups of children according to very specific linguistic differences.

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LINGUISTIC ANALYSIS SHEET

34,35 No. of T-units_____
 36-38 Mean length_____
 39,40 Beg. with co.conj._____
 41,42 No. of sub.cl._____
 43 No. of mazes_____
 44 Attention claim._____.

SYNTACTIC STRUCTURES

45,46 SV_____
 47,48 SVO_____
 49 SVCn_____
 50 SVCA_____
 51 SVIO_____
 52 SVOcn_____
 53 SVOCa_____
 54 Adv.VS_____
 55 There VS_____
 56 It VS_____
 57 Passive_____
 58 Command_____
 59 Question_____
 60 Partial_____

61,62 SENT.-COMB.TFTNS

63,64 NOMINAL TFTNS
HEADED NOMINAL TFTNS

65 N+N_____
 66 N+Adj._____
 67 N+Poss._____
 68 N+Rel.Clause_____
 69 N+O Rel.Clause_____
 70 N+Prep.Phr._____
 71 N+Inf.Phr._____
 72 N+Part.Phr._____
 73 N+Adverbial_____

NON-HEADED NOMINAL TFTN

74 D.Disc.(Nn.Cl.)_____
 75 Noun.Cl._____
 76 Prep.Phr._____
 77 Infin.Phr._____
 78 Infin.Phr.+Subj._____
 79 Gerund Phr._____

FUNCTION OF NOMINAL TFTNS

34,35 Subject_____
 36,37 Object_____
 38 Indirect Obj._____
 39 Subj. Comp._____
 40 Obj. Comp._____
 41 Appositive_____
 42 Obj. of Prep._____
 43 Adv. Noun_____

ADVERBIAL STRUCTURES

44,45 Adverb Clause_____
 46,47 Time_____
 48 Place_____
 49 Manner_____
 50 Cause_____
 51 Condition_____
 52 Comparison_____
 53 Adj. Comp._____

SENTENCE ADVERBIALS

55 Absolute Const._____
 56 Interjected Cl._____
 57 Adverbial Phrase
 Adv. Infin._____
 Adv. Prep.Phr._____

COORDIN.STRUCTURES

60 Modifiers_____
 61 Adjectival_____
 62 Adverbial_____
 63 CO NOMINALS_____
 64,65 CO PREDICATES_____
 66 V_____
 67 VC_____
 68 VCn_____
 69 VCa_____
 70 VIO_____

ERROR ANALYSIS

71 No. I_____
 72 No. II_____
 73 No. III_____
 74 No. IV_____
 75 No. V-discourse_____
 76 No. V-form_____
 77 No. V-number_____
 78 No. V-tense_____
 79 No. V-fragment_____

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